ObsSea4Clim

ObsSea4Clim Kick-off Meeting, 13 – 14 March 2024

Speakers: Steffen Olsen (DMI) smo@dmi.dk

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Call: **HORIZON-CL6-2023-CLIMATE-01-8**

Closing the research gaps on Essential Ocean Variables (EOVs) in support of global assessments

- Option A) 'Physics'

Duration: 1 Feb 2024 - 31 Jan 2028

Budget: 6 million EUR

Coordination: Danish Meteorological Institute (DMI)

Co-cordinators: Steffen M. Olsen (DMI)
Sabrina Speich (ENS)

DMI Project Office:

Chiara Bearzotti
Erika Hayashi
Irene Robles Garcia

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19 partners

From 13 countries

Welcome

Danish Meteorological Institute (DMI)
Denmark
Project Coordinator

Helmholtz-Zentrum fur Ozeanforschung Kiel (GEOMAR)
Germany

Ecole Normale Superieure (ENS)
France

Havstovan (HAV)
Faroe Islands

EuroGOOS (EUROGOOS)
Belgium

ETT SPA (ETT)
Italy

Mercator Ocean (MOI)
France

Fondazione Centro Euro-Mediterraneosui Cambiamenti Climatici (CMCC)
Italy

Stiftelsen Nansen Senter for Miljoog Fjernmaling (NERSC)
Norway

+Atlantic Associacao para um Laboratorio Colaborativo Atlantico (+ATL)
Portugal

Ilmatieteen Laitos (FMI)
Finland

Agencia Estatal Consejo Superior de Investigaciones Cicentificas (CSIC)
Spain

Nansen Environmental Research Centre (India) Ltd. (NERCI)
India

Hellenic Centre for Marine Research (HCMR)
Greece

Universite de Toulouse (UTOU)
France

National Centre for Polar and Ocean Research (NCPOR)
India

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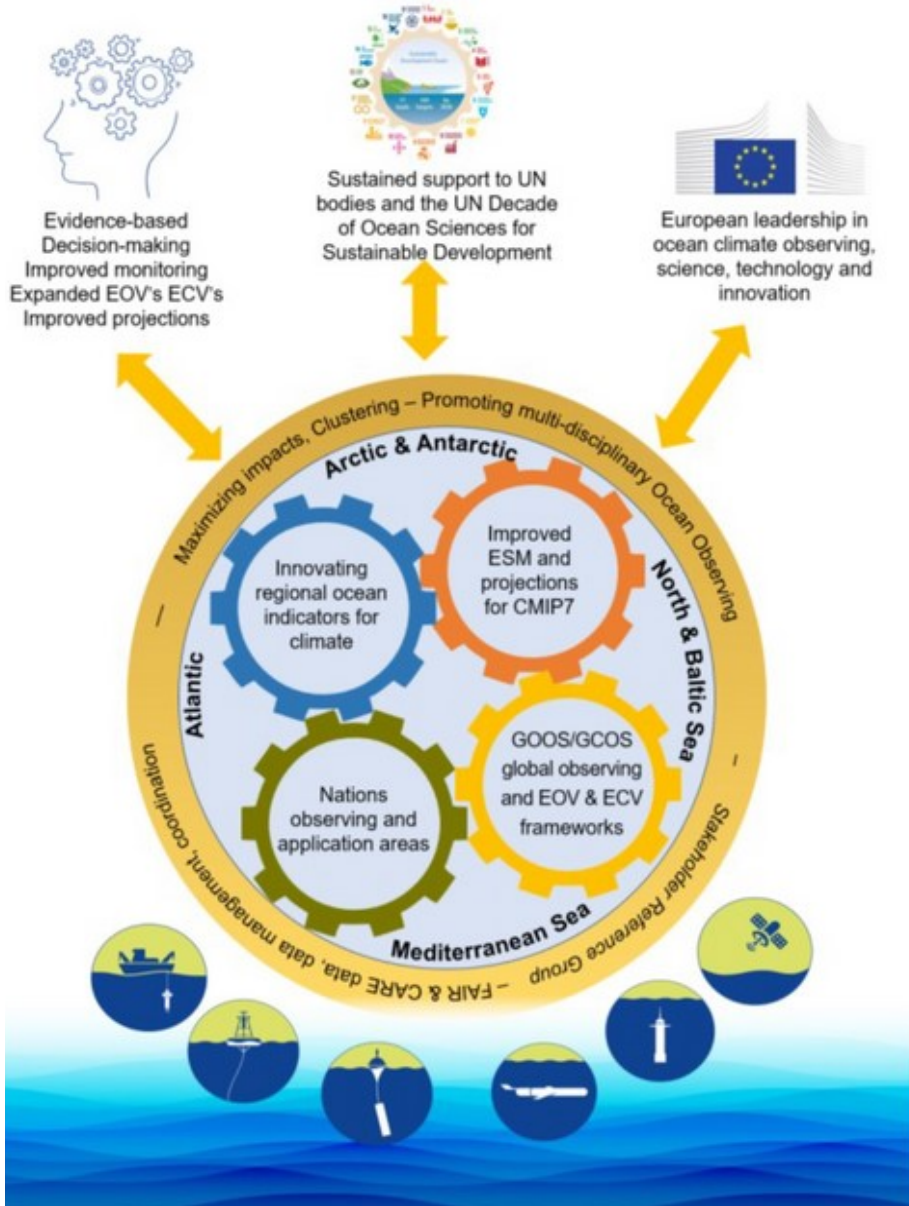
Overarching goal

- ...to deliver an improved framework for nations' contributions to European ocean observations of Essential Ocean Variables and Essential Climate Variables

- ...in support of regional and global climate assessments, projections and actionable indicators for sustainable development



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Specific objectives

- To develop ocean indicators, provide improved EOV/ECV's and evolve European ocean observing
  GOOS/GCOS/EuroGOOS/EOOS
- To create an interoperable data ecosystem serving multidisciplinary needs
  Operational services/warnings to climate/ocean health/Green Deal
- To develop best practices and standards for interoperable in-situ and satellite observing
  IOC/Ocean Best Practices/UN Ocean Decade/QA4EO
- To advance the use of EOV and ECV's for improved ESM and reduced uncertainty in projections
  IPCC/AR7/CMIP7
- To place Europe in the forefront of the global coordination of the broader ocean-climate nexus
  CMS/EMODnet/European Digital Twin/UN Ocean Decade

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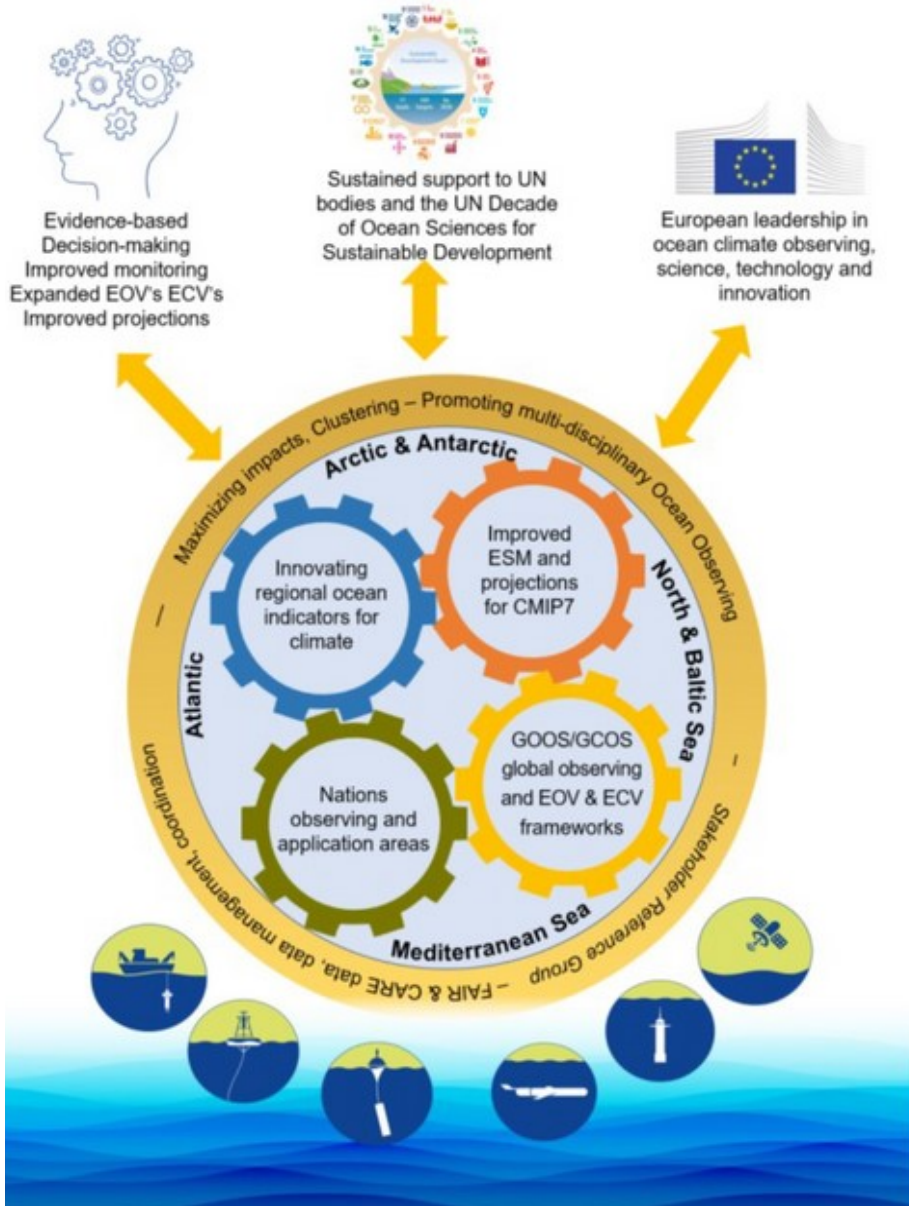
Building blocks

Nations' ocean observing applicable to selected application areas

EOV and ECV framework, defined

Global Climate Indicator framework / Ocean Indicator framework

ESMs and projections, CMIP/IPCC



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Adopting the WMO RRR for ocean climate applications

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EOV's - three categories (GOOS)

- The majority of EOVs are also Essential Climate Variables
- ECVs defined by the Global Climate Observing System GCOS
- Option B) and C)

Physics	Biochemistry	Biology and Ecosystems
Sea state Ocean surface stress Sea ice Sea surface height Sea surface temperature Subsurface temperature Surface currents Subsurface currents Sea surface salinity Subsurface salinity Ocean surface heat flux Ocean bottom pressure	Oxygen Nutrients Inorganic carbon Transient tracers Particulate matter Nitrous oxide Stable carbon isotopes Dissolved organic carbon	Phytoplankton biomass and diversity Zooplankton biomass and diversity Fish abundance and distribution Marine turtles, birds, mammals abundance and distribution Hard coral cover and composition Seagrass cover and composition Macroalgal canopy cover and composition Mangrove cover and composition Microbe biomass and diversity (*emerging) Invertebrate abundance and distribution (*emerging)
Cross-disciplinary (including human impact)		
	Ocean colour Marine debris (*emerging)	Ocean sound

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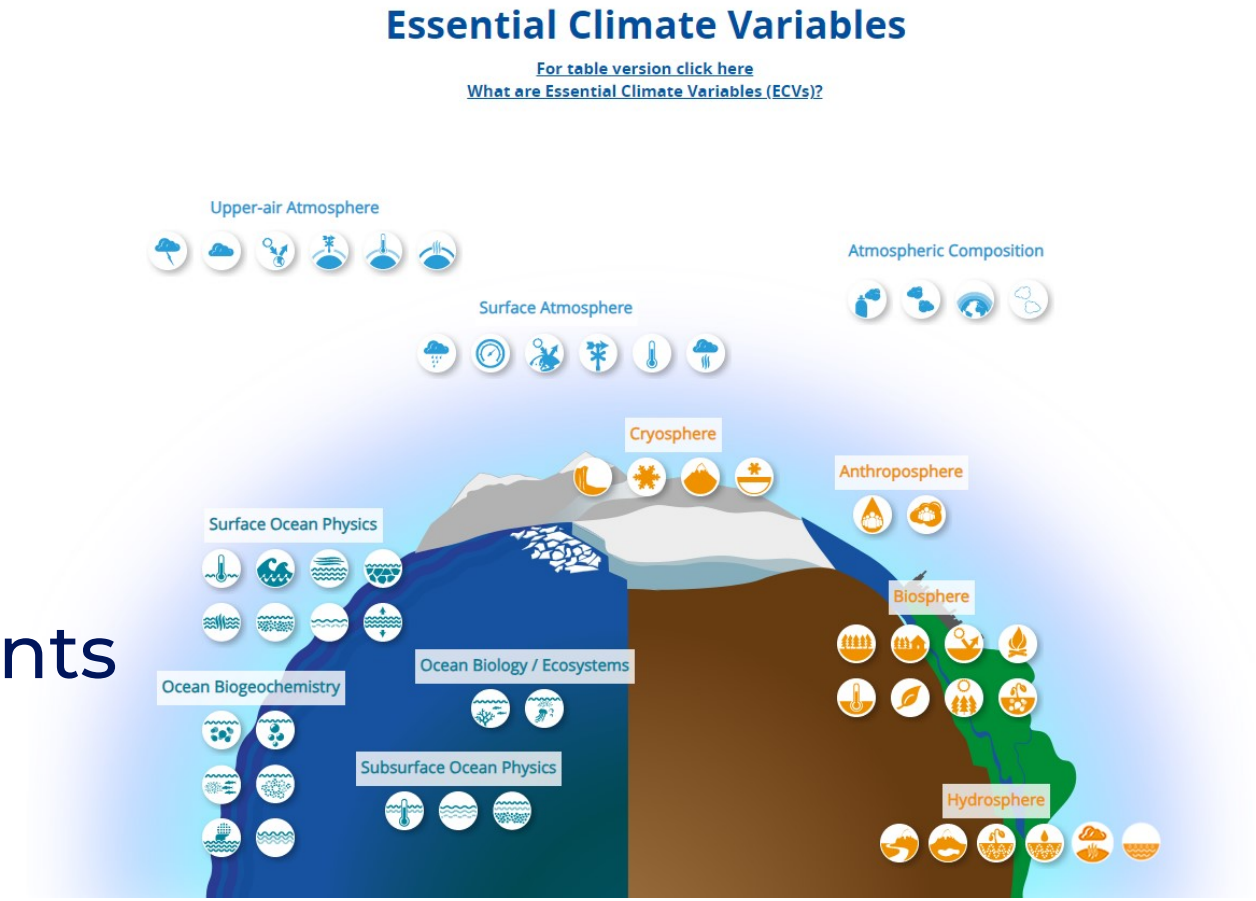
GCOS ECV's

- Relevance
- Feasibility
- Cost effectiveness

- Monitoring principles
- Observation requirements
- ECV inventory (Space)



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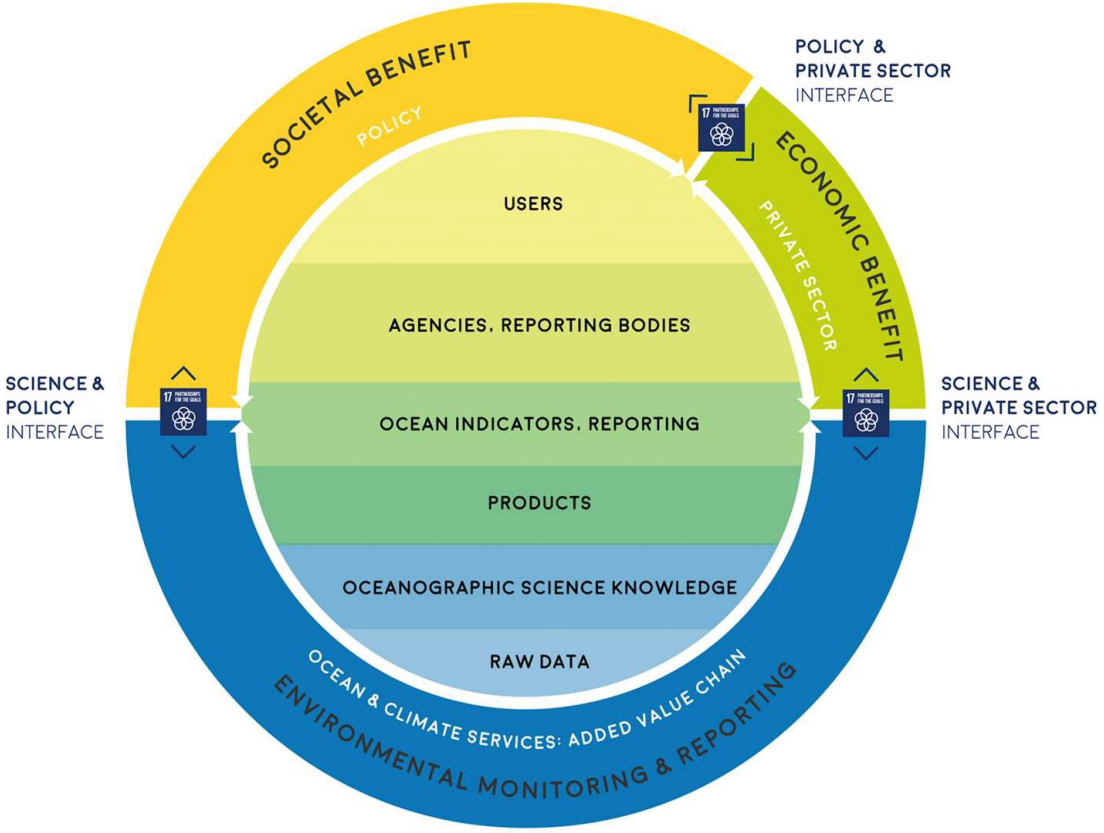
Ocean indicator framework

- Provides and integrated view of one or more EOV/ECV's
- Useful for regular reporting on the state, variability and change of the ocean
- Powerful tool to establish a dialogue at the science policy interface in support of decision making, policy and sustainable development
- Foster multidisciplinary collaboration

- GOOS working group on ocean indicators established



von Schuckmann et al. 2020
(J. Marine Policy)

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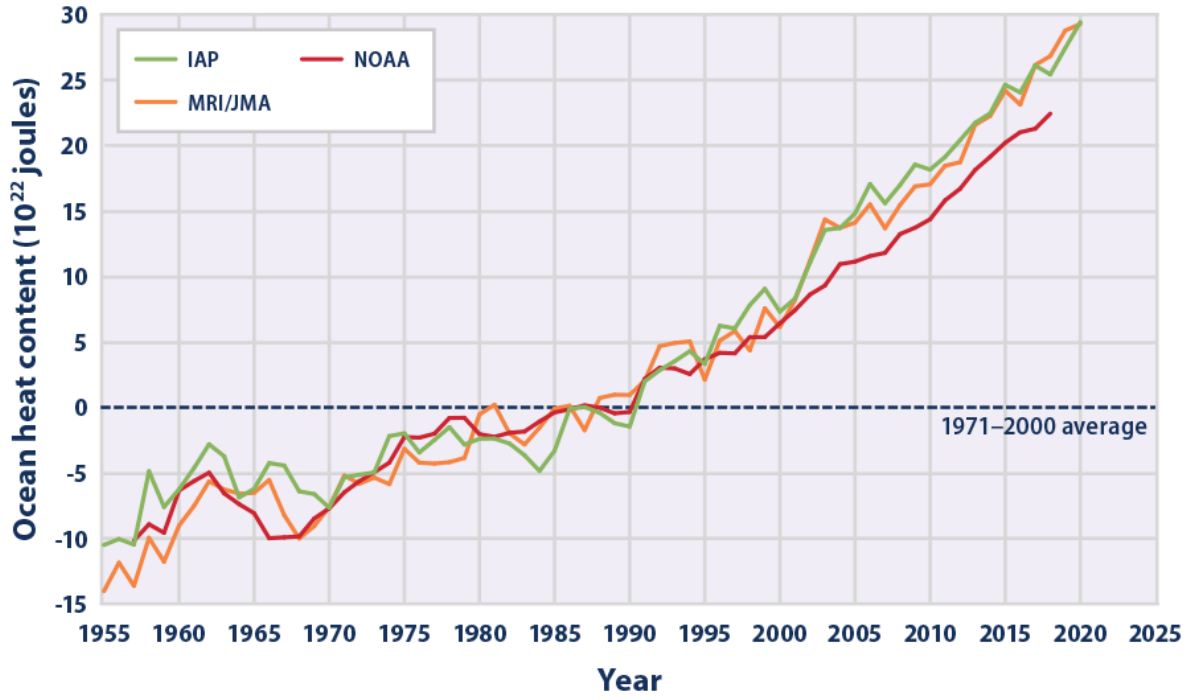
Ocean's in the global climate indicator framework

GCOS
KEEPING WATCH OVER OUR CLIMATE

WMO IOC International Science Council UN environment

Temperature and Energy	Atmospheric Composition	Ocean and Water	Cryosphere
Surface Temperature	Atmospheric CO_2	Ocean Acidification	Glaciers
Ocean Heat		Sea Level	Arctic and Antarctic Sea Ice Extent



https://www.epa.gov/climate-indicators/climate-change-indicators-ocean-heat

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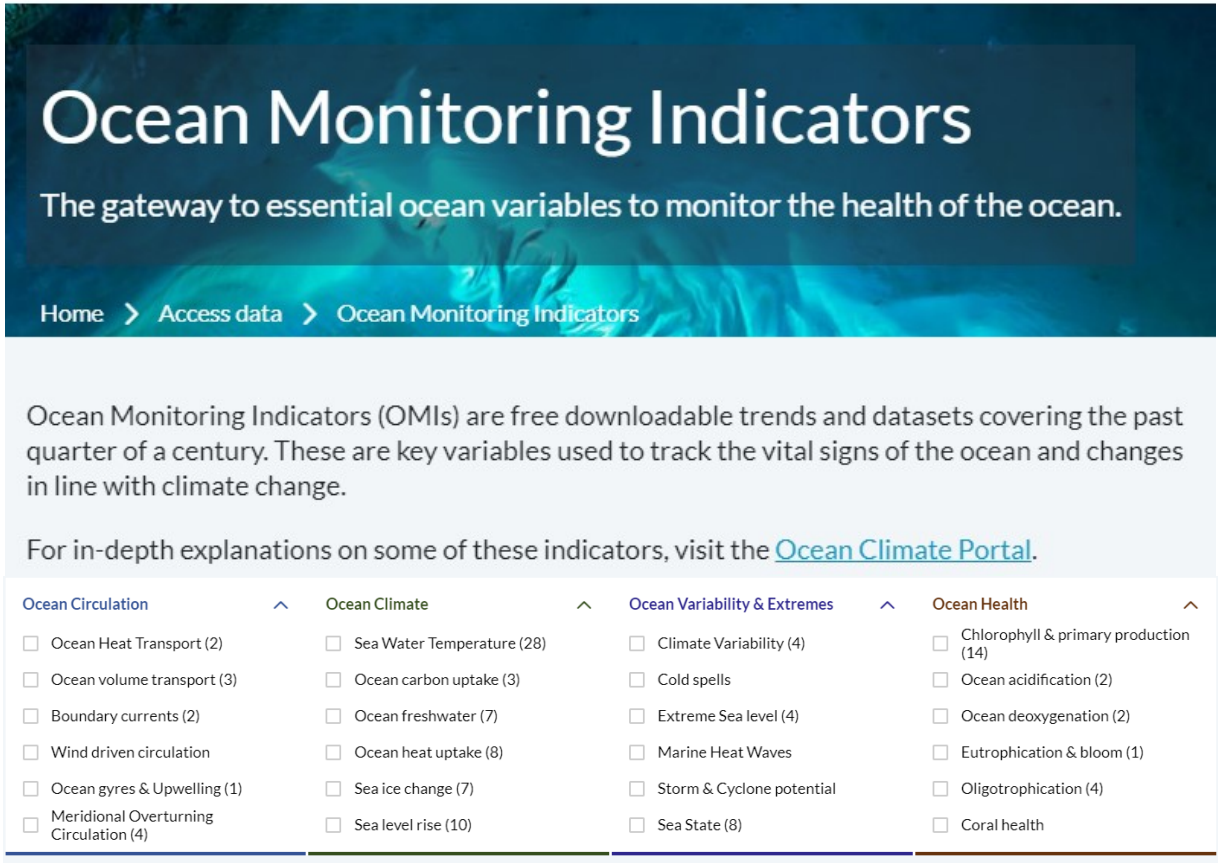
Copernicus

- OMI concept
- Includes reanalysis products
- Extends beyond the global indicator framework



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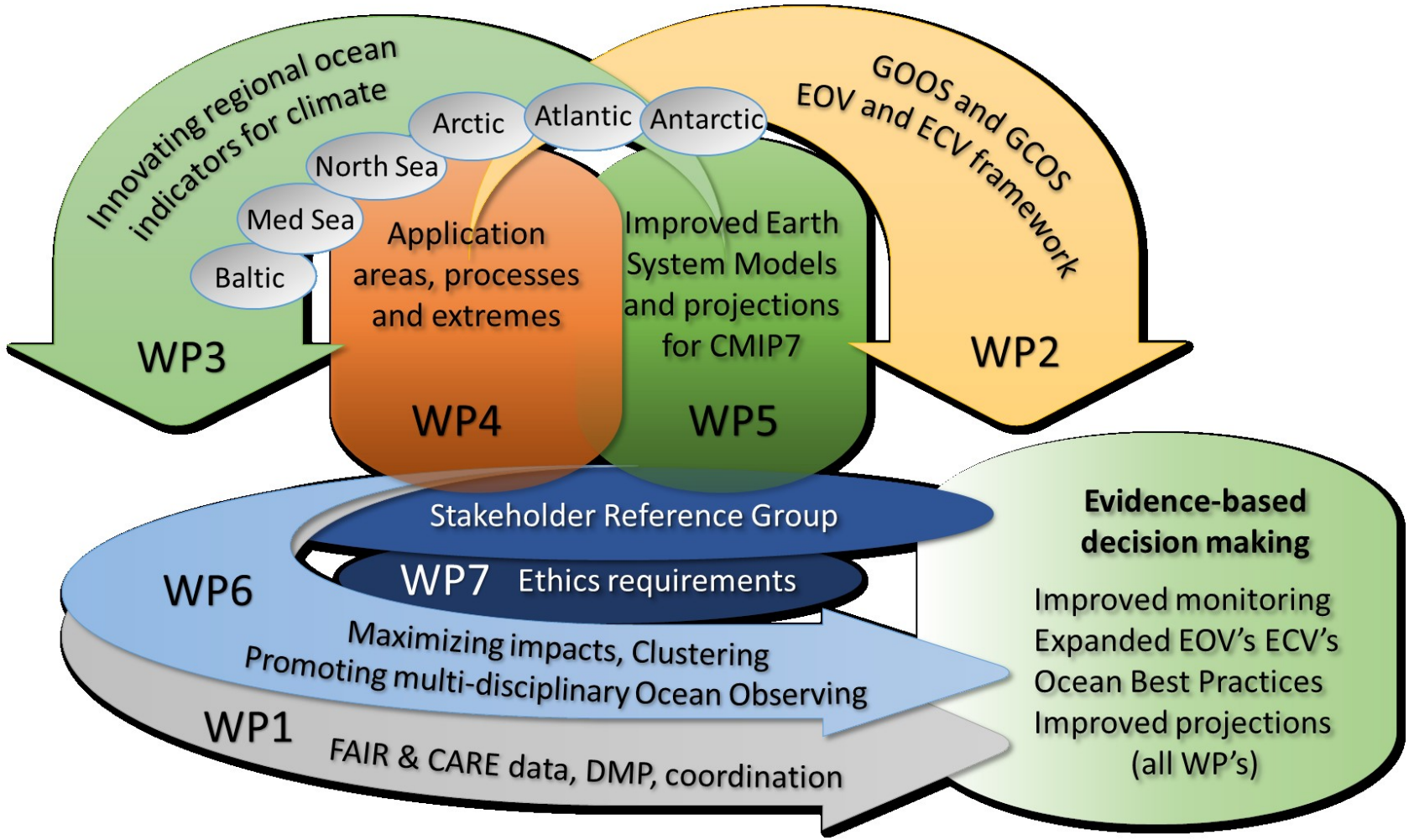
Work packages and flow



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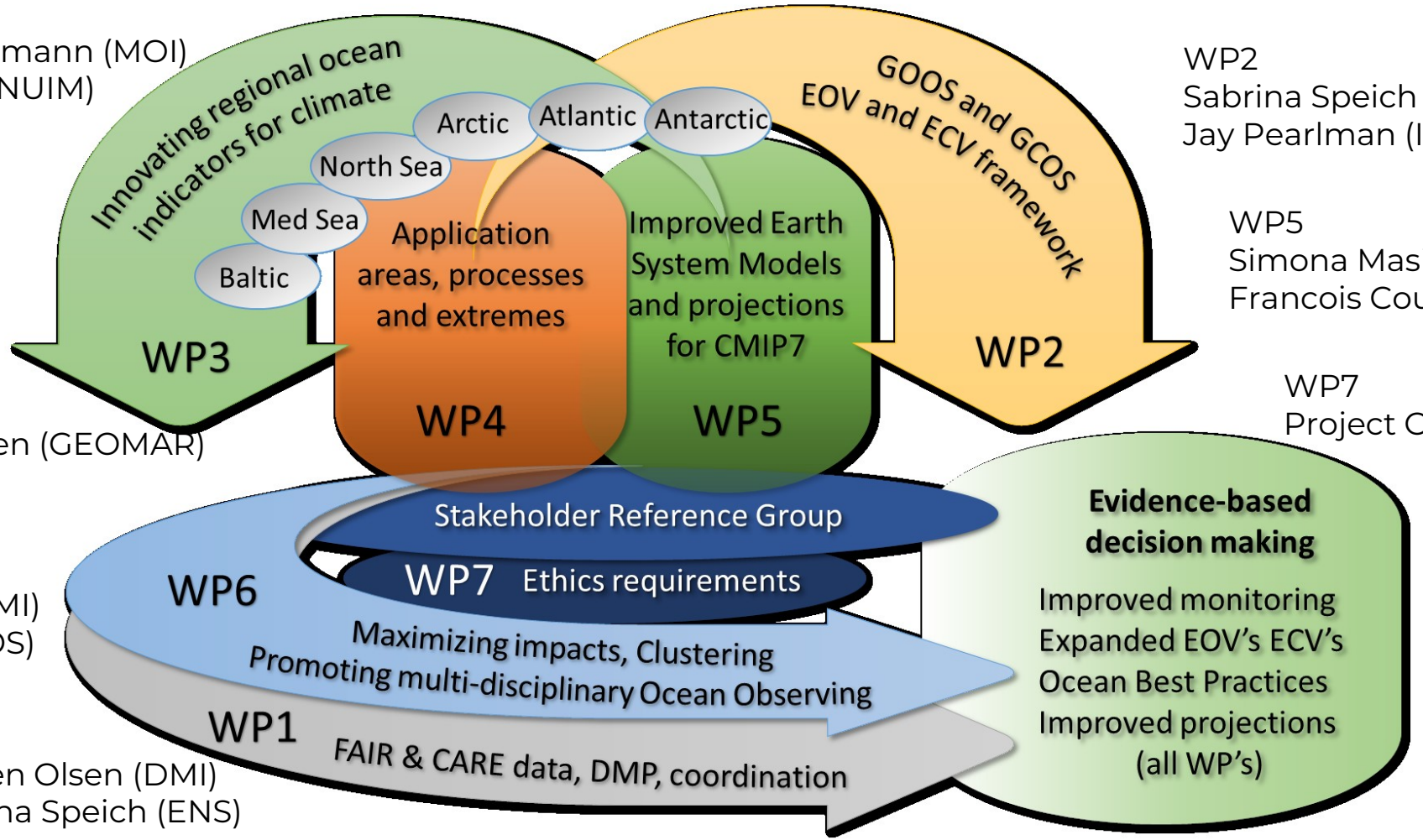
Work packages and flow

WP3
Karina von Schuckmann (MOI)
Gerard McCarthy (NUIM)



WP2
Sabrina Speich (ENS)
Jay Pearlman (IEEE)

WP5
Simona Masina (CMCC)
Francois Counillon (NERSC)

WP7
Project Office, DMI

WP4
Johannes Karstensen (GEOMAR)
Roshin Raj (NERSC)

WP6
Chiara Bearzotti (DMI)
Inga Lips (EuroGOOS)

WP1
Steffen Olsen (DMI)
Sabrina Speich (ENS)

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Kick off meeting

- Strengthen work relations and a team spirit
- A common understanding of the project scope
- Identify key interactions between work packages
- Initial dialogues with other initiatives and key organizations

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1. DMI (DK)
2. GEOMAR (DE)
3. ENS (FR)
4. MOI (FR)
5. CMCC (IT)
6. NERSC (NO)
7. UNIBO (IT)
8. IEEE (FR)
9. NUIM (IE)
10. HAV (FO)
11. EUROGOOS (BE)
12. ETT (IT)
13. +ATL (PT)
14. FMI (FI)
15. CSIC (ES)
16. HCMR (EL)
17. UTOU (FR)
18. NCPOR (IN) Associated partner
19. NERCI (IN) Associated partner

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